

Claims

1. A piston pump for transporting highly viscous media from a storage reservoir to a  
5 spray gun, the pump having a differential piston positioned in a cylindrical housing  
and translationally drivable, the pump having a first pressure chamber connected to a  
second pressure chamber via a connecting line having a check valve therein, the pump  
further connected with a storage reservoir via an inlet valve,

10 characterized by the differential piston having a dipping piston that dips into the  
medium to be transported, the dipping piston attached to an aligned, protruding piston  
rod,

15 wherein a pass-through of the piston rod from the first pressure chamber is closed  
fluid-tight by at least one seal,

and having a transport line in the vicinity of the pass-through of the piston rod.

2. The piston pump as recited in Claim 1,

20 characterized in that the transport line is positioned, at least in part, concentric to the  
piston rod.

25 3. The piston pump as recited in Claim 1,

characterized in that the transport line is, at least in part, laterally offset from the piston  
rod.

30 4. The piston pump as recited in Claim 1,

characterized by the fact that the pass-through of the piston rod has at least a portion of the transport line provided in a connecting piece connected with the housing of the differential piston, and wherein an extension piece receives the dipping piston and is attached to the connecting piece.

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5. The piston pump as recited in Claim 4,

characterized by the inlet valve being located upline from the first pressure chamber.

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6. The piston pump as recited in claim 5 wherein the first pressure chamber is in the connecting piece.

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7. The piston pump as recited in claim 1 wherein the inlet valve includes a ball received in a cage through which fluid can flow and in which the ball is urged by a spring towards a valve seat.

8. The piston pump as recited in Claim 1,

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characterized by the fact that the pass-through of the piston rod is provided in an internal partition of the housing, and that the transport line is formed in this area by a plurality of openings in the internal partition, located concentric to the pass-through.

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9. The piston pump recited in Claim 8,

characterized by the fact that the inlet valve is formed by a sealing ring associated with the openings in the internal partition of the housing, and a pressure spring acting between the ring and the housing.

10. The piston pump as recited in Claim 1,

wherein the dipping piston includes:

- a. a disk having openings therein and positioned in the extension piece and attached to the piston rod,
- b. a stop provided on the piston rod at a distance from the disk, and
- c. a cover mounted on the piston rod and movable between the stop and the disk such that the openings provided in the disk are closed when the cover is proximate the disk and the openings are open when the cover is distal of the disk.

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11. The piston pump as recited in Claim 10,

wherein the disk has radial play with respect to the extension piece.

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12. The piston pump as recited in Claim 1,

wherein the piston rod is attached to the differential piston by a connecting piece through which fluid can flow and which is attached to the differential piston.

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13. The piston pump as recited in Claim 1,

characterized by the fact that the first pressure chamber has a volume of about 1.2 to 2.5 times a volume of the second pressure chamber.